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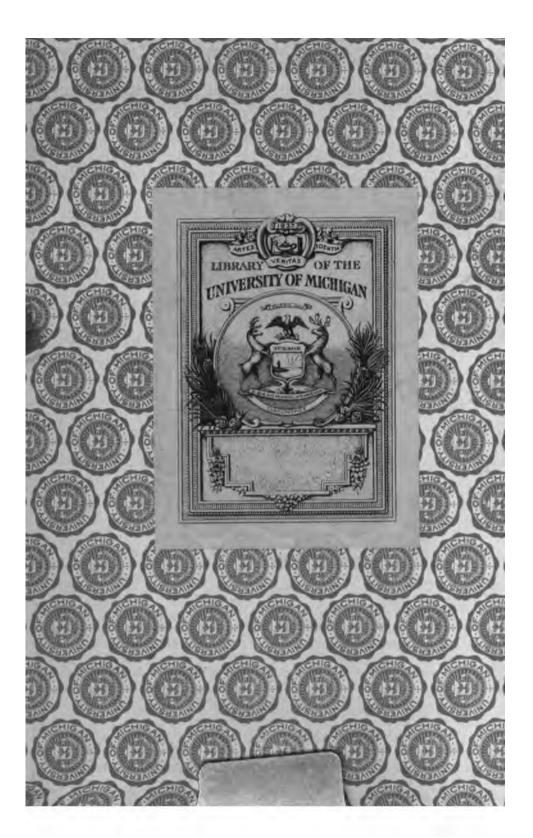
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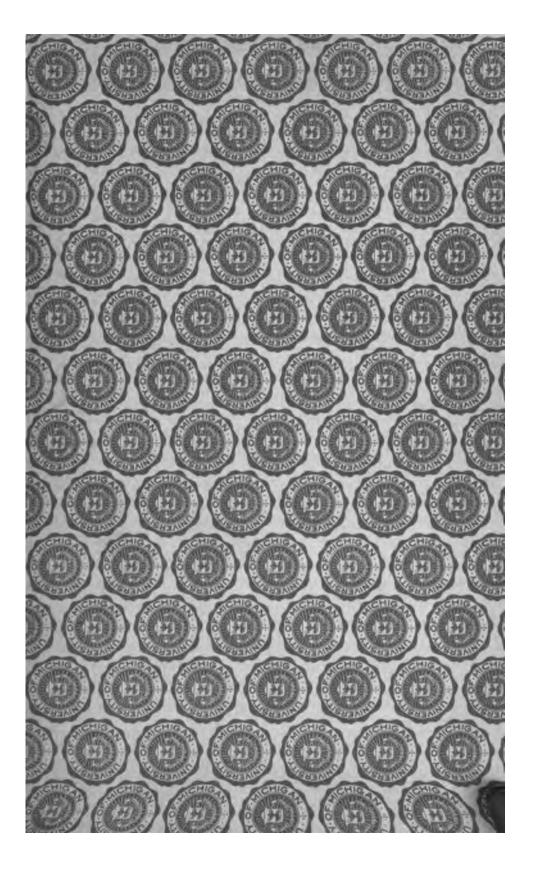
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PROCEEDINGS

OF THE

Indiana Academy of Science

1921

F. PAYNE, EDITOR

INDIANAPOLIS:

WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING

1922



CONSTITUTION AND BY-LAWS

INDIANA STATE ACADEMY OF SCIENCE.

CONSTITUTION.

ARTICLE I.

SECTION 1. This association shall be called the Indiana Academy of Science.

SEC. 2. The objects of this Academy shall be scientific research and the diffusion of knowledge concerning the various departments of science; to promote intercourse between men engaged in scientific work, especially in Indiana; to assist by investigation and discussion in developing and making known the material, educational and other sources and riches of the State; to arrange and prepare for publication such reports of investigation and discussion as may further the aims and objects of the Academy as set forth in these articles.

WHEREAS, The State has undertaken the publication of such proceedings, the Academy will, upon request of the Governor, or one of the several departments of the State, through the Governor, act through its council as an advisory body in the direction and execution of any investigation within its province as stated. The necessary expenses incurred in the prosecution of such investigation are to be borne by the State; no pecuniary gain is to come to the Academy for its advice or direction of such investigation.

The regular proceedings of the Academy as published by the State shall become a public document.

ARTICLE II.

SECTION 1. Members of this Academy shall be honorary fellows, fellows, non-resident members, and active members.

SEC. 2. Any person engaged in any department of scientific work, or in any original research in any department of science, shall be eligible to active membership. Active members may be annual, life members or patrons. Annual members may be elected at any meeting of the Academy; they shall sign the constitution, pay an admission fee of two dollars and thereafter an annual fee of one dollar. Any person who shall at one time contribute fifty dollars to the funds of this Academy may be elected a life member of the Academy, free of assessment. Any person who shall at one time contribute one hundred dollars to the funds of this academy may be elected patron, who shall be a life member of the Academy, free of dues. Non-resident members may be elected from those who have been active members but who have removed from the State. In any case, a three-fourths vote of the members present shall elect to membership. Application for membership in any of the foregoing classes shall be referred to a committee on application for membership, who shall consider such application and report to the Academy before the election.

Sec. 3. The members who are actively engaged in scientific work, who have recognized standing as scientific men, and who have been members of the Academy at least one year, may be recommended for nomination for election as fellows by three fellows or members personally acquainted with their work and character. Of members so nominated a number not exceeding five in one year may, on recommendation of the Executive Committee, be elected as fellows. At the meeting at which this is adopted, the members of the Executive Committee for 1894 and fifteen others shall be elected fellows, and those now honorary members shall become honorary fellows. Honorary fellows may be elected on account of special prominence in science, on the written recommendation of two members of the Academy. In any case a three-fourths vote of the members present shall elect.

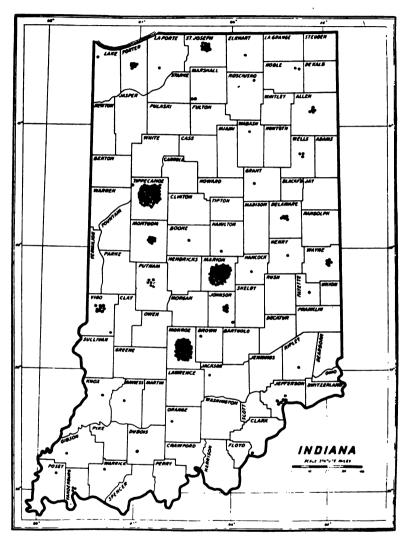
ARTICLE III.

- Section 1. The officers of this Academy shall be chosen by ballot at the annual meeting, and shall hold office one year. They shall consist of a President, Vice-President, Secretary, Assistant Secretary, Press Secretary, Editor, and Treasurer, who shall perform the duties usually pertaining to their respective offices and in addition, with the ex-Presidents of the Academy, shall constitute an Executive Committee. The President shall, at each annual meeting, appoint two members to be a committee which shall prepare the programs and have charge of the arrangements for all meetings for one year.
- SEC. 2. The annual meeting of the Academy shall be held in the city of Indianapolis within the week following Christmas of each year, unless otherwise ordered by the Executive Committee. There shall also be a summer meeting at such time and place as may be decided upon by the Executive Committee. Other meetings may be called at the discretion of the Executive Committee. The past President, together with the officers and Executive Committee, shall constitute the council of the Academy, and represent it in the transaction of any necessary business not especially provided for in this constitution, in the interim between general meetings.
- SEC. 3. This constitution may be altered or amended at any annual meeting by a three-fourths majority of the attending members of at least one year's standing. No question of amendment shall be decided on the day of its presentation.

BY-LAWS.

1. On motion, any special department of science shall be assigned to a curator, whose duty it shall be, with the assistance of the other members interested in the same department, to endeavor to advance knowledge in that particular department. Each curator shall report at such time and place as the Academy shall direct. These reports shall include a brief summary of the progress of the department during the year preceding the presentation of the report.

- 2. The President shall deliver a public address on the morning of one of the days of the meeting at the expiration of his term of office.
- 3. The Press Secretary shall attend to the securing of proper newspaper reports of the meetings and assist the Secretary.
- 4. No special meeting of the Academy shall be held without a notice of the same having been sent to the address of each member at least fifteen days before such meeting.
- 5. No bill against the Academy shall be paid without an order signed by the President and countersigned by the Secretary.
- 6. Members who shall allow their dues to remain unpaid for two years, having been annually notified of their arrearage by the Treasurer, shall have their names stricken from the roll.
- 7. Ten members shall constitute a quorum for the transaction of business.
- 8. An Editor shall be elected from year to year. His duties shall be to edit the annual Proceedings. No allowance shall be made to the Editor for clerical assistance on account of any one edition of the Proceedings in excess of fifty (\$50) dollars, except by special action of the Executive Committee.



Geographic Distribution of Members. Marion County, 9 fellows and 74 active; Tippecanoe, 11 fellows and 66 active; Monroe, 18 fellows and 39 active. Thirty-nine of the 92 counties are represented and 22 of the 39 have only one member.

MEMBERS.1

FELLOWS.

Andrews, F. M., 110 E. Tenth St., Bloomington 1896	1911°
Arthur, Joseph C., 915 Columbia St., LafayetteCharter	1893
Badertscher, J. A., 312 Fess Ave., Bloomington 1914	1917
Beede, Joshua S., 200 Seneca St., Bantesville, Okla 1902	1906
Behrens, Charles A., 217 Lutz Ave., W. Lafayette 1916	1917
Bennett, Lee F., 309 S. Ninth St., Janesville, Wis 1898	1916
Benton, Geo. W., 100 Washington Sq., care American Book	
Co., New York, N.Y	1896
Bigney, Andrew J., Evansville College, EvansvilleCharter	1897
Blanchard, William M., DePauw University, Greencastle 1909	1914
Blatchley, W. S., 1558 Park Ave., IndianapolisCharter	1893
Breeze, Fred J., State Normal, Muncie 1898	1910
Bruner, Henry Lane, Butler College, Indianapolis 1892	1899
Bryan, William Lowe, Indiana University, Bloomington 1893	1914
Butler, Amos W., 52 Downey Ave., Irvington, Indianapolis. Charter	1893
Carr, Ralph H., Purdue University, Lafayette 1914	1922
Cogshall, W. A., 423 S. Fess Ave., Bloomington 1905	1906
Coulter, Stanley, 213 S. Ninth St., LafayetteCharter	1893
Culbertson, Glenn, Hanover College, Hanover 1895	1899
Cummings, Edgar Roscoe, 327 E. Second St., Bloomington 1900	1906
Deam, Charles C., Bluffton	1910
Dietz, Harry F., State Conservation Commission, Indianapolis 1909	1922
Dryer, Charles R., 325 Grove St., Ft. Wayne	1897
Dutcher, J. B., 1212 Atwater Ave., Bloomington 1907	1915
Eigenmann, Carl H., 630 Atwater Ave., Bloomington Charter	1893
Enders, Howard E., 249 Littleton St., West Lafayette 1906	1912
Evans, Percy Norton, 302 Waldron St., West Lafayette 1895	1901
Fisher, Martin L., 325 Vine St., West Lafayette 1908	1919
Foley, Arthur L., Indiana University, Bloomington 1894	1897
Hessler, Robert, 25 S. Bolton Ave., IndianapolisCharter	1899
Hufford, Mason E., 514 S. Sluss Ave., Bloomington 1904	1916
Hurty, John E., 31 E. Eleventh St., Indianapolis 1902	1910
Hyde, Roscoe Raymond, 4101 Penhurst Ave., Baltimore, Md 1909	1909
Jackson, Herbert S., Agricultural Exp. Station, Lafayette. 1915	1919
Kern, Frank D., Dept. of Botany, State College, Pa 1905	1912
Koch, Edward W., 24 High St., Buffalo, N. Y 1914	1917
Logan, Wm. N., 924 Atwater Ave., Bloomington 1916	1917
Mahin, Edward G., Purdue University, Lafayette 1902	1922
Markle, M. S., Earlham College, Earlham	1919
McBeth, Wm. A., 1905 N. Eighth St., Terre HauteCharter	1904

^{&#}x27;Every effort has been made to obtain the correct address of each member. In order to keep the mailing list correct, it is necessary that the secretary be informed of all changes of address. In accordance with the action of the Academy, members two years in arrears have been dropped from the roll.

² Date of election to Academy.

Date of election to fellowship.

McBride, Robert W., 1239 State Life Bldg., Indianapolis. Charter Middleton, Arthur R., 705 Russell St., W. Lafayette	1916 1918 1901 1893 1903 1914 1916 1906 1906 1914 1912 1912 1919 1911 1914 1922 1914 1894
NON-RESIDENT MEMBERS AND FELLOWS.	
Abbott, G. A., Grand Forks, N.D., Fellow. Aldrich, John Merton, Washington, D.C., Fellow. Brannon, Melvin A., Beloit, Wis. Burrage, Severance, Denver, Colo., Fellow. Campbell, D. H., Stanford, Cal. Clark, Howard Walton, U.S. Biol. Station, Fairport, Iowa. Cook, Mel T., New Brunswick, N.J., Fellow. Coulter, John M., University of Chicago, Illinois, Fellow. Davis, B. M., Oxford, Ohio. Evermann, Barton Warren, Golden Gate Park, San Francisco, Ca Goss, William Freeman M., 61 Broadway, N.Y., Fellow. Greene, Charles Wilson, 814 Virginia Ave., Columbia, Mo. Hargitt, Charles W., 909 Walnut St., Syracuse, N.Y. Hay, Oliver Perry, U.S. National Museum, Washington, D.C. Jordan, David Starr, Stanford, Cal. Kingsley, John S., Urbana, Ill. Knipp, Charles T., 915 W. Nevada St., Urbana, Ill. MacDougal, Daniel Trembly, Tucson, Ariz.	.1918 .1898 .1900 .1902 .1893 .1.5 .1893 .1893 .1893
MacDougal, Daniel Tremoly, Tucson, Artz. McMullen, Lynn Banks, 641 Euclid Ave., Valley City, N.D Marsters, Vernon F., Kansas City, Mo., care of C. N. Gould, Fellow. Miller, John Anthony, Swarthmore, Pa., Fellow Moore, George T., Missouri Botanical Garden, St. Louis, Mo Noyes, William Albert, Urbana, Ill., Fellow	.1893 .1904 .1909 .1893 .1902

⁴ Date of membership or fellowship. Elected previous to 1891.

Springer, Alfred, 312 E. Second St., Cincinnati, Ohio

Swain, Joseph, Swarthmore, Pa., Fellow	
Von Kleinsmid, R. B., Tucson, Ariz	
Waldo, Clarence A., Fellow (address not known)	
Wiley, Harvey W., Woodward Building, Washington, D.C	.1895
Zeleny, Chas., 1003 W. Illinois St., Urbana, Ill	. 1904
ACTIVE MEMBERS.	
Acre, Harlan Q., Gordon, Nebr	1918
Adams, James Edward, 419 W. Wood St., West Lafayette	
Adams, William B., 431 S. College Ave., Bloomington	
Addington, Archie, 801 Atwater Ave., Bloomington	
Allee, W. N., 221 E. Fourth St., Bloomington	
Allen, William Ray, University of Kentucky, Lexington, Ky	
Allison, Luna Evelyn, 435 Wood St., West Lafayette	.1908
Anderegg, Frederick O., 322 Waldron St., West Lafayette	. 1918
Anderson, Flora Charlotte, 327 S. Henderson St., Bloomington	.1914
Armington, John H., U.S. Weather Bureau, Indianapolis	.1921
Atkinson, F. C., 2534 Broadway, Indianapolis	
Auble, Robert N., 409 N. Wolcott St., Indianapolis	
Baker, Lora M., 804 S. Grant St., Bloomington	
Baker, Wm. F., Box 586, Carmel	
Balcom, Stephen F., 3634 Birchwood Ave., Indianapolis	
Baldwin, Ira L., 849 N. Salisbury St., West Lafayette	
Barnett, Horace L., Indiana University, Bloomington	
Barnhill, Dr. T. F., Indiana Univ. School of Medicine, Indianapolis	
Barr, Harry L., Buckley, Ill.	
Barrett, Edward, State Geologist, Indianapolis	
Beals, Colonzo, 103 Russell St., Hammond	
Beecher, Alva, 1010 E. Pike St., Crawfordsville	
Beeson, K. E., 427 State St., West Lafayette	
Begeman, Hilda, 24 Linden St., Wellesley, Mass	
Bell, Alva Marie, 511 Smith Ave., Bloomington	
Berg, George F., Jr., 3518 Balsam Ave., Indianapolis	
Berteling, Dr. J. B., 228 Colfax Ave., South Bend	
Black, Homer F., 2721 S. Michigan Ave., Chicago, Ill	
Bockstahler, Lester, 101 Haven House, Evanston, Ill	
Bodine, Mrs. Emma, 4 Mills Place, Crawfordsville	
Bolen, Homer R., 314 S. Grant St., Bloomington	
Bond, Dr. Charles S., 112 N. Tenth St., Richmond	
Bond, Dr. George S., 112 N. Tenth St., Richmond	
Boots, Edwin B., 125 N. 6th St., West Terre Haute	.1922
Bourke, Adolphus A., 2304 Liberty Ave., Terre Haute	.1909
Brewer, P. H., 145 E. Oak St., West Lafayette	
Brock, James E., Sweetser	1922

Date of membership in the Academy.

Brosey, Charles L., 766 W. Drive, Woodruff Place, Indianapolis	.1922
Brossmann, Charles, 1503 Merchants Bank Bldg., Indianapolis	.1909
Bruce, Edwin M., 2108 N. Tenth St., Terre Haute	.1918
Burton, Everett T., 3100 Broadway, New York, N.Y	.1920
Bushnell, T. M., Agr. Exp. Sta., West Lafayette	.1922
Bybee, Halbert P., University Station, Austin, Texas	
Byers, Cecil W., Box 332, University Station, Grand Forks, N.D	. 1919
Cain, Stanley A., 30 N. Holmes St., Indianapolis	
Campbell, Elmer G., 220 Sylvia St., West Lafayette	.1919
Campbell, Marion S., 29 N. Hawthorne Lane, Indianapolis	
Canis, Edward N., Route A-2, Box 372-A, Indianapolis	
Caparo, Jose Angel, Notre Dame University, South Bend	
Carter, Edgar B., 4555 Central Ave., Indianapolis	
Cassady, Emil V., 1841 C.D., Woodruff Place, Indianapolis	
Cavins, Alexander, 1232 N. Alabama St., Indianapolis	.1920
Chansler, Elias J., Bicknell	
Chapman, Edgar K., 506 S. Grant St., Crawfordsville	
Chitty, Ethel, Indiana State Normal, Muncie	
Christy, O. B., Indiana State Normal, Muncie	
Clark, Jediah H., 126 E. Fourth St., Connersville	
Clay, Mrs. Celia, 320 N. State St., Kendallville	
Cleveland, Clarence R., Purdue Agricultural Exp. Sta., Lafayette.	
Cloves, G. H. A., Eli Lilly & Co., Indianapolis	
Coggeshall, Lowell, 339 S. Walnut St., Bloomington	
Conner, S. D., 204 S. Ninth St., Lafayette	
Cook, Rolla V., 600 E. Second St., Bloomington	
Coryell, Noble H., Columbia University, New York, N. Y	
Cottman, Evans W., Lanier Place, Madison	
Cox, C. F., 528 N. Oxford St., Indianapolis	
Crozier, Alice M., 312 Kenmore Rd., Indianapolis	
Curtis, Lila C., 406 N. Fess Ave., Bloomington	
Danglade, Ernest, Vevay	
Davis, Charles, 217 Sylvia St., West Lafayette	
Davis, Hugh L., 423 Vine St., West Lafayette	
Davis, John J., Purdue University, Lafayette	
Davis, Ward B., Botany Bldg., University of Chicago, Chicago, Ill Dean, Miss Grace, French Lick	1000
Dean, John C., University Club, IndianapolisdeForest, Howard, Indianapolis Normal School, Indianapolis	1091
Demaree, Delzie, Benham	1020
Deppe, C. A., Franklin	
Deppe, C. A., Franklin	1020
Deuker, Henry W., Jr., Y.M.C.A., Indianapolis	1091
Dietz, Chas. D., 3121 Fairfield Ave., Ft. Wayne	
Dietz, Emil, 334 Congress Ave., Indianapolis	
Diggs, John C., 54 Kealing Ave., Indianapolis	
Dilts, Charles D., 3121 Fairfield Ave., Ft. Wayne	.1920
Doan, Martha, Earlham	. 1896
Doan Richard L. 802 E. Third St. Blooming on	

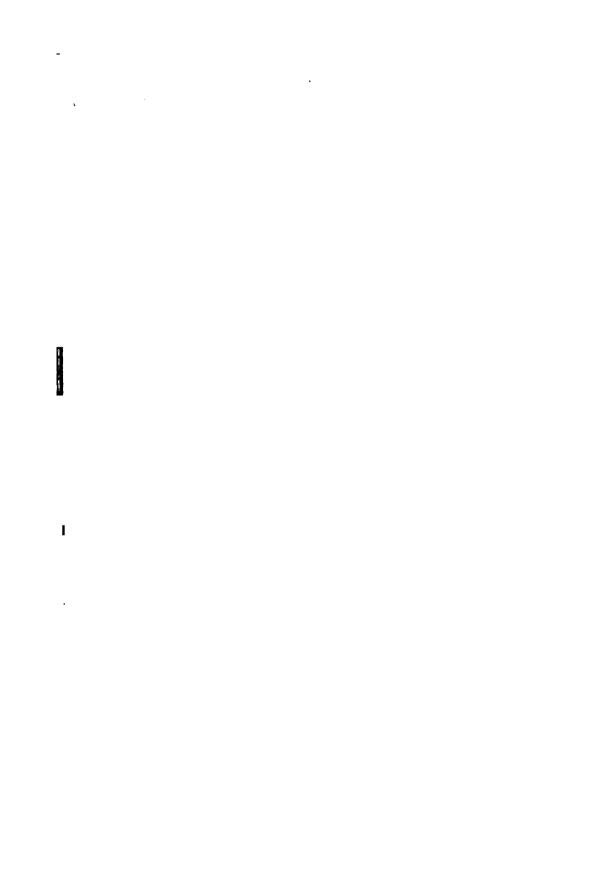
Dolan, Joseph P., Syracuse	
Domroese, Fred C., 815 W. Main St., Crawfordsville	
Donahue, Joseph N., Columbia University, Portland, Ore	.1920
Douglass, Benjamin W., Trevlac	. 1916
Downhour, Elizabeth, 1817 Broadway, Indianapolis	. 1915
Dugan, Elizabeth, 717 N. Tremont St., Indianapolis	.1922
Dunham, David H., 429 Main St., West Lafayette	. 1920
Earp, Samuel E., 634 Occidental Bldg., Indianapolis	.1909
East, Mrs. Pearl W., Gilman, Iowa	.1920
Eaton, Dunwald L., Indiana Central College, Indianapolis	. 1922
Edmonson, Clarence E., 822 Atwater Ave., Bloomington	.1912
Eisenhard, Geo. B., Culver Military Academy, Culver	. 1921
Eisenhard, Mrs. Geo. B., Culver	. 1921
Eldred, Frank P., 2823 N. Delaware St., Indianapolis	. 1918
Elkin, Sarah K., 612 Harvey Ave., West Lafayette	
Emerson, Dr. Charles P., 602 Hume-Mansur Bldg., Indianapolis	. 1915
Estabrook, Arthur H., Board of State Charities, Indianapolis	
Etter, Austin, 931 Cass Ave., S. E., Grand Rapids, Mich	.1920
Evans, Samuel G., 1452 Upper Second St., Evansville	. 1891
Feldman, Horace W., 138 Chauncey Ave., West Lafayette	. 1920
Ferguson, Luther S., State Geologist's Office, Indianapolis	. 1920
Foresman, George K., 110 S. Ninth St., Lafayette	
Franklin, Fred F., Washington	. 1921
Friesner, Ray C., Butler College, Indianapolis	. 1919
Froning, Henry B., 415 Pokagon St., South Bend	
Fugate, Mary, 2525 Park Ave., Indianapolis	
Fuller, F. D., 3021 College Ave., Bryan, Texas	
Funk, Dr. Austin, 404 Spring St., Jeffersonville	
Galloway, Jesse J., Geology Dept., Columbia Uni., New York, N. Y.	
Gantz, Richard A., State Normal School, Muncie	
Gardner, Max William, Purdue Agr. Exp. Station, Lafayette	
Garver, Frederick R., 510 E. 5th St., Bloomington	
Gatch, Willis D., 605 Hume-Mansur Bldg., Indianapolis	
Gates, Florence A., 3435 Detroit Ave., Toledo, Ohio	
Gayler, Dona G., 200 N. Sixth St., Terre Haute	
Gidley, William F., 276 Littleton St., West Lafayette	. 1914
Gillum, Robert G., Indiana State Normal, Terre Haute	. 1913
Gingery, Walter G., Shortridge High School, Indianapolis	
Goldsmith, William M., Southwestern College, Winfield, Kansas	
Graves, Benjamin H., 604 E. Market St., Crawfordsville	
Greene, Frank C., 1434 Cincinnati Ave., Tulsa, Okla	
Gregory, Charles T., 1022 First St., W. Lafayette	
Guernsey, E. Y., 1201/2 W. 46th St., Los Angeles, Calif	
Guthrie, W. A., 10 E. Market St., Indianapolis	
Hadley, Joel W., 1127 Fairfield Ave., Indianapolis	
Hagey, G. L., 219 Wiggins St., West Lafayette	
Hanna, U. S., Atwater Ave., Bloomington	
Hansen, Albert A., Purdue Agri. Exp. Station, Lafayette	
Hansford, Hazel I., Southeastern Hosp. for Insane, North Madison.	. 1916

Happ, William, South Bend	
Harding, Charles F., 503 University St., West Lafayette	. 1918
Hardy, Eugene H., 1230 S. Keystone Ave., Indianapolis	.1920
Harmon, Paul M., 311 E. South Ave., Bloomington	. 1915
Hassenzahl, Elizabeth, 424 Vine St., West Lafayette	. 1921
Hedebol, Frederick C. N., 809 W. Grand Blvd., Springfield, Ill	. 1920
Heimburger, Harry V., Hamline Ave., St. Paul, Minn	. 1912
Heimlich, Louis F., 495 Littleton St., West Lafayette	. 1914
Hendricks, Victor K., 131 N. Eighth St., Terre Haute	.1900
Hess, Walter N., S. College Ave., Greencastle	. 1917
Hills, Donald H., 2127 Talbott Ave., Indianapolis	.1922
Hinman, Jack J., University of Iowa, Iowa City, Iowa	.1912
Hoffer, Geo. N., 434 Littleton St., West Lafayette	
Hoffman, A. C., 920 E. Drive, Woodruff Place, Indianapolis	
Hoffman, G. L., Western Pennsylvania Hospital, Pittsburg, Pa	
Hole, Allen D., 615 National Road West, Richmond	
Howick, Howard, Indiana State Normal, Muncie	
Howlett, Berton A., 503 Elm St., Valparaiso	
Huber, Leonard L., Hanover	
Hufferd, Ralph, Greencastle	
Hull, Julia, St. Anne, Ill	
Hutchinson, Emory, Norman Station	
Hutton, Joseph G., State College, Brookings, S. D	
Hyslop, George H., 143 Twenty-second St., Long Island, N. Y	
Irving, Thomas P., Notre Dame University, South Bend	
Jackson, James W., Central High School, Chattanooga, Tenn	
James, Charles M., 443 Wood St., West Lafayette	
James, Evalyn G., 144 Butler Ave., Indianapolis	
Jensen, Howard E., 360 Downey Ave., Indianapolis	
Kaczmarek, Regidius M., Box 54, Notre Dame Uni., South Bend	
Kantor, Jacob R., 645 N. Walnut St., Bloomington	
Katterjohn, Mable C., Lynnville	
Kendrick, James B., Purdue Agri. Exp. Station, Lafayette	. 1921
Kennedy, Clarence H., Ohio State Univ., Columbus, Ohio	
Kiester, Jackson A., 300 S. Green St., Crawfordsville	
Kinsey, Alfred C., S. Park Ave., Bloomington	
Klipinger, Walter C., 2234 Park Ave., Indianapolis	.1922
Knecht, Christian, 207 N. Dunn St., Bloomington	. 1922
Knotts, Armanis F., Anglis, Fla	. 1917
Kcch, E. W., 24 High St., U. S. Medical Dept., Buffalo, N. Y	. 1914
Kohl, Edwin J., 218 Fowler Ave., West Lafayette	. 1917
Lanham, Miss Bess, 610 E. Wabash Ave., Crawfordsville	
Larrimer, Walter H., Box 95, West Lafayette	
Lieber, Richard, State House, Indianapolis	
Liston, Jesse G., R.F.D. 2, Lewis	. 1916
Ludwig, C. A., Clemson College, S.C	. 1911
Ludy, Llewellyn V., 600 Russell St., West Lafayette	
Luten, Daniel B., 1056 Lemcke Annex, Indianapolis	
Lyon, Marcus Ward, Jr., 214 LaPorte Ave., South Bend	
Mains, E. B., 212 S. Grant St., W. Lafayette	.1916

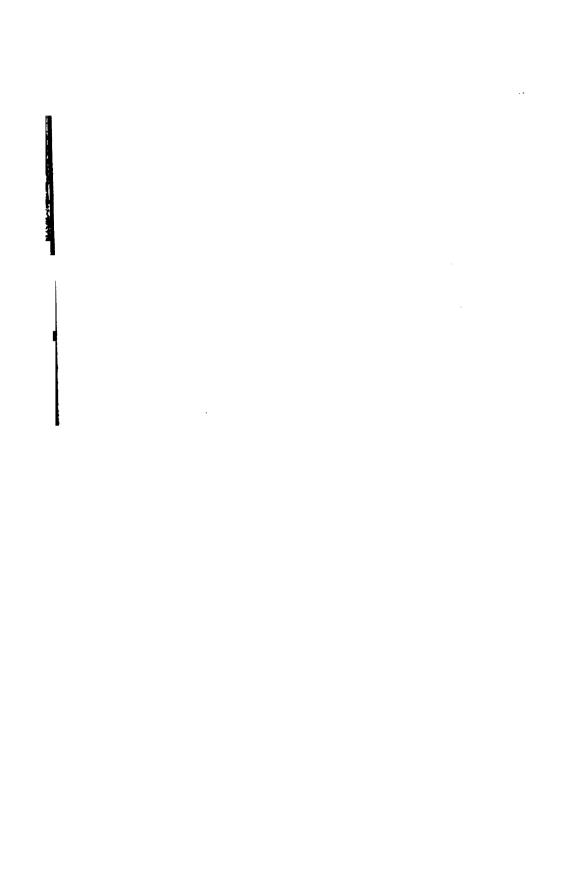
Maloney, Wm., Notre Dame University, South Bend	
Malott, Burton J., Technical High School, Indianapolis	.1916
Malott, Clyde A., 521 E. 2nd St., Bloomington	
Malott, Ruth Boyd, 629 Carlisle Place, Indianapolis	
Mannfeld, George N., 1235 Central Ave., Indianapolis	.1922
Martin, Elsie S., 134 N. Drexel St., Indianapolis	.1922
Martin, Mrs. Viva Dutton, 134 N. Drexel St., Indianapolis	
Mason, Thomas E., 130 Andrew Place, West Lafayette	.1905
McAvoy, Miss Blanche, Muncie	
McCarty, Morris, High School, Montmorenci	
McDonald, Clinton C., 415 S. Dunn St., Bloomington	
McDonald, Doloris, 526 E. 5th St., Bloomington	
McEachron, Karl B., 335 Lutz Ave., West Lafayette	
McGavran, Edward, Downey Ave., Indianapolis	
Mellon, M. G., 403 Russell St., West Lafayette	
Michael, Lyle Jordan, Indiana Central College, Indianapolis	
Miller, Fred A., Eli Lilly Co., Greenfield	
Miller, John W., 115 E. Columbia St., West Lafayette	
Montgomery, Basil E., Poseyville	1099
Montgomery, H. T., 208 Dean Building, South Bend	
Moore, John Irwin, Owensville	
Moore, Kenneth W., 125 Downey Ave., Indianapolis	
Moorhead, John G., 124 DeHart St., West Lafayette	
Morgan, Frank W., Science Hall, Valparaiso	
Morgan, Will, University Heights, Indianapolis	
Morrison, Harold, Bureau of Entomology, Washington, D.C	
Morrison, Louis A., care Edward Morrison, Mich. Agric. Coll., Eas	
Lansing, Mich.	
Muldoon, Hugh C., 502 Main St., Valparaiso	
Mullendore, Miss Naomi, Franklin	
Munro, George W., 202 Waldron St., West Lafayette	
Myers, B. D., 321 N. Washington St., Bloomington	
Nelson, Ralph E., 232 Littleton St., West Lafayette	
Nicholson, Thomas E., 519 N. Fess Ave., Bloomington	
Niles, Edward H., 4450 Guilford Ave., Indianapolis	
Noble, Willis Bernard, Box 95, West Lafayette	
Noyes, Harry A., State Dept. of Agriculture, Lansing, Mich	
Oberholser, Harry C., U. S. National Museum, Washington, D.C	
O'Neal, Claude E., Forrest Avc., Delaware, Ohio	
Orahood, Harold, Union Mills	
Orton, Clayton R., State College, Pa	
Osbun, Clifford Leroy, 201 Russell St., West Lafayette	
Owen, D. A., 200 S. State St., Franklin	
Painter, Henry R., Box 95, West Lafayette	
Payne, Mary G., 303 S. Downey Ave., Indianapolis	
Pearson, George B., Box 95, West Lafayette	
Pearson, Nathan E., Indiana University, Bloomington	
Peffer, Harry C., 1022 Seventh St., West Lafayette	
Petry, Edward J., 625 Twelfth Ave., Brookings, S. D	

Pinkerton, Earl, Box 447, Walters, Okla	1916
Pitkin, Edward M., 519 N. College St., Bloomington	1922
Pollard, Cash B., 419 W. Wood St., West Lafayette	
Prentice, Burr N., 400 Russell St., West Lafayette	. 1915
Price, Walter A., 123 Sheetz St., West Lafayette	. 1919
Proulx, Edward G., 111 Waldron St., West Lafayette	. 1918
Raab, Albert L., 1351 Consolidated Bldg., Indianapolis	
Rawles, William P., 924 E. Third St., Bloomington	. 1920
Records, Ralph L., Edinburg	. 1920
Reeves, John R., 414 E. Third St., Bloomington	. 1920
Reinhard, Herbert F., Room 152, State House, Indianapolis	. 1921
Richards, Dr. and Mrs. Aute, University of Oklahoma, Norman	
Okla	. 1916
Ridgway, Robert, 1030 S. Morgan St., Olney, Ill	1920
Rifenburgh, S. A., Valparaiso	. 1916
Riley, Katherine, 56 Whittier Place, Indianapolis	. 1916
Roark, Louis, Box 1266, Okmulgee, Okla	. 1917
Roberts, Chester R., 901 E. Jefferson St., Franklin	. 1919
Roberts, Harry John, Route A., Lafayette	
Robertson, Pay S., 702 Evergreen St., West Lafayette	. 1922
Senour, Frank C., 323 N. Grant St., Bloomington	. 1922
Sheak, Wm. H., Ijamsville	. 1916
Sherman, George W., 8 Murdock Flats, West Lafayette	
Shonle, Horace A., Eli Lilly & Co., Indianapolis	1919
Showalter, Ralph W., Eli Lilly & Co., Indianapolis	. 1915
Silvey, Oscar W., College Station, Texas	1909
Smith, Charles Piper, 354 S. Tenth St., San Jose, Calif	
Smith, Ernest R., Greencastle	1921
Smith, John C., Route 6, Franklin	. 1919
Smith, Lee T., R.F.D. 7, Bloomington	1922
Smith, Paul R., University of Pennsylvania, Philadelphia, Pa	. 1920
Snodgrass, Robert E., U. S., Agricultural Station, Wallingford	,
Conn	
Spitzer, George, 1000 Seventh St., West Lafayette	
Spong, Philip, 3873 E. Washington St., Indianapolis	1916
Stacy, Allan R., 1555 Ashland Ave., Indianapolis	
Stirrett, George M., 521 State St., West Lafayette	
Stone, Ralph B., 307 Russell St., West Lafayette	
Strickler, Alvin, Evansville College, Evansville	
Sulzer, Elmer G., Madison	.1918
Suter, E. M., 1437 Broadway, Ft. Wayne	
Tasker, Roy C., 612 Anderson St., Greencastle	
Tatlock, Myron W., Shortridge High School, Indianapolis	
Taylor, George O., 502 S. Sluss Ave., Bloomington	
Telfer, Margaret, 403 W. 5th St., Bloomington	
Terry, Dr. Oliver P., 215 Sheetz St., West Lafayette	
Test, Louis A., 511 Russell St., West Lafayette	
Tetrault, Philip A., 607 University St., West Lafayette	
Tevis, Emma L., 122 W. Eighteenth St., Indianapolis	
Thompson, Clem O., Hanover	1911

Thompson, James T., 334 Lafayette Ave., Lebanon	. 1920
Thornburn, A. D., 42 E. 37th St., Indianapolis	. 1909
Thrasher, Mrs. John R., Apt. 1, 3805 N. Delaware St., Indianapolis	. 1921
Treat, Frank M., Atwater Ave., Bloomington	. 1920
Troop, James, 123 Sheetz St., West Lafayette	. 1914
Tucker, William Motier, 505 Ballantine Road, Bloomington	. 1910
Turley, Harold E., Am. Baking Inst., Chicago, Ill	. 1921
Turner, B. B., 1017 Park Ave., Indianapolis	. 1916
Turner, William P., 222 Lutz Ave., West Lafayette	. 1908
Twitty, Victor, 4922 Central Ave., Indianapolis	
Van Nuys, W. C., Newcastle	
Visher, Stephen S., 817 E. 2nd St., Bloomington	
Voorhees, Herbert S., 804 Wildwood Ave., Ft. Wayne	
Wallace, Frank N., Dept. of Entomology, State House, Indianapolis	
Ward, Mary Mallory, 405 E. William St., Kendallville	
Weems, Mason L., 102 Greenfield Ave., Valparaiso	
Wenninger, Rev. Francis J., Notre Dame University, South Bend.	
Wiancko, Alfred T., 230 S. Ninth St., Lafayette	
Wildman, Ernest A., Earlham	
Wiley, Ralph B., 227 Russell St., West Lafayette	
Wilhite, Miss Ida B., Butler College, Indianapolis	
Wilkinson, Paul D., 300 S. 4th St., Terre Haute	
Williams, A. A., Valparaiso	
Wilson Arthur I 001 W Walack St. Commanderille	
Wilson, Arthur J., 901 W. Wabash St., Crawfordsville	
Wilson, E. R., 2830 E. Vermont St., Indianapolis	
Wilson, Mrs. Etta, 9077 Clarendon Ave., Detroit, Mich	
Wilson, Ira T., 521 Kirkwood Ave., Bloomington	
Winkenhofer, Walter, Huntingburg	
Witmer, Samuel W., 1405 Ninth St., Goshen	
Wolfe, Harold E., 314 N. Washington St., Bloomington	
Wood, Harry W., 5923 Winthrop Ave., Chicago, Ill	
Woodruff, Albert E., University of Chicago, Chicago, Ill	
Young, Gilbert A., 739 Owen St., Lafayette	
Young, Herman, 602 N. College St., Bloomington	
Young, Paul A., 605 W. University Ave., Urbana, Ill	. 192
Yuncker, Truman G., 203 Wood St., Greencastle	
Zebrowski, George, 244 Harrison St., West Lafayette	
Zehring, William A., 303 Russell St., West Lafayette	
Zerfas, Leon G., Indiana University Medical School, Indianapolis	. 192
Zierer, Clifford M., Indiana University, Bloomington	. 192
SUMMARY OF MEMBERSHIP.	
Fellows 5	8
Members, active 32	
Members and Fellows, non-resident	
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Total41	4



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PROCEEDINGS

OF THE

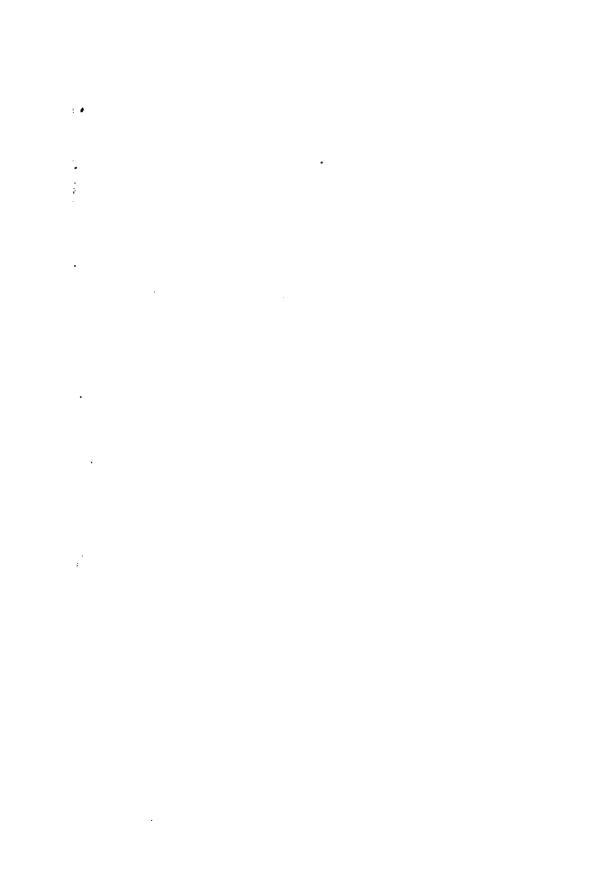
THIRTY-EIGHTH ANNUAL MEETING

OF THE

INDIANA ACADEMY OF SCIENCE

1922







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